We claim:

1. In an electronic device, a data visualization method comprising the steps of:

providing a data structure holding a representation of a Markov model for a system being modeled;

populating said Markov model data structure with at least one of transition probability data and emission probability data for the system being modeled; and

displaying more than one dimension of said probability data from said Markov model.

2. The method of claim 1 wherein said Markov model data structure is a Hidden Markov model data structure.

3. The method of claim 1 wherein said probability data is displayed as a heat map and a probability measure is displayed in color.

4. The method of claim 1 wherein said probability data is displayed as a heat map and a probability measure is displayed in grayscale.

5. The method of claim 1 wherein said probability data is displayed as a heat map and a probability measure is displayed graphically.

6. The method of claim 1 wherein said system being modeled is a protein family sequence.

7. The method of claim 1 wherein said system being modeled is one of a speech recognition system and a financial modeling system.

8. The method of claim 1, comprising the further step of:

displaying a model state along a first dimension, an output probability field along a second dimension, and a probability measure as a third dimension.

9. The method of claim 8 wherein said probability measure is scaled using one of plain probabilities, log-probabilities and log-odds ratios probabilities.

10. The method of claim 9 wherein the scale is non-contiguous.

11. The method of claim 8 wherein said output probability field is one of a symbol emission mass distribution function at every state and transition mass distribution function at every state.

12. The method of claim 8 wherein every state in said model is displayed.

13. The method of claim 1 wherein only a portion of said probability data is displayed.

14. The method of claim 1, comprising the further steps of:

estimating programmatically said probability data prior to displaying said probability data.

15. The method of claim 14 wherein at least one of the Baum-Welch algorithm, Viterbi training algorithm, (Expectation Maximization) EM algorithm, and custom algorithm are used to estimate said probability data.

16. The method of claim 1 wherein said probability data is displayed in a heat map and comprising the further step of:

displaying an exact value of a probability measure in response to a user input.

17. In an electronic device, a system, comprising:

a Markov model visualization process, said Markov model visualization process including a probability determining algorithm and a visualization function, said probability determining algorithm determining the probabilities of the occurrence of events in a system being modeled with a Markov model, said visualization function displaying the Markov model probabilities with three dimensions of data;

a storage location holding data for components of said system being modeled;

a display device interfaced with said electronic device, said display device displaying said three dimensions of data to a user.

18. The system of claim 17 wherein said three dimensions of data are displayed in a heat map.

19. The system of claim 18 wherein the three dimensions of data are at least one model state, at least one output probability field, and at least one probability measure after scaling.

20. The system of claim 19 wherein said at least one probability measure after scaling is at least one of plain probabilities, log-probabilities and log-odds ratios probabilities.

21. The system of claim 19 wherein said output probability field is one of a symbol emission mass distribution function at every state and transition mass distribution function at every state.

22. The system of claim 17 wherein the system being modeled by the Markov model is a protein family.

23. In an electronic device, a medium holding executable steps for a data visualization method , said method comprising the steps of:

providing a data structure holding a representation of a Markov model for a system being modeled;

populating said Markov model data structure with at least one of transition probability data and emission probability data for the system being modeled; and

displaying more than one dimension of said probability data from said Markov model.

24. The medium of claim 23 wherein said Markov model data structure is a Hidden Markov model data structure.

25. The medium of claim 23 wherein said probability data is displayed as a heat map and a probability measure is displayed in color.

26. The medium of claim 23 wherein said probability data is displayed as a heat map and a probability measure is displayed in grayscale.

27. The medium of claim 23 wherein said probability data is displayed as a heat map and a probability measure is displayed graphically.

28. The medium of claim 23 wherein said system being modeled is a protein family sequence.

29. The medium of claim 23 wherein said system being modeled is one of a speech recognition system and a financial modeling system.

30. The medium of claim 23, comprising the further step of:

displaying a model state along a first dimension, an output probability field along a second dimension, and a probability measure as a third dimension.

31. The medium of claim 30 wherein said probability measure is scaled using one of plain probabilities, log-probabilities and log-odds ratios probabilities.

32. The medium of claim 31 wherein the scale is non-contiguous.

33. The medium of claim 30 wherein said output probability field is one of a symbol emission mass distribution function at every state and transition mass distribution function at every state.

34. The medium of claim 23 wherein every state in said model is displayed.

35. The medium of claim 23 wherein only a portion of said probability data is displayed.

36. The medium of claim 23, wherein said method comprises the further steps of:

estimating programmatically said probability data prior to displaying said probability data.

37. The medium of claim 36 wherein at least one of the Baum-Welch algorithm, Viterbi training algorithm ,(Expectation Maximization) EM algorithm, and custom algorithm are used to estimate said probability data.

38. The medium of claim 23 wherein said probability data is displayed in a heat map and comprising the further step of:

displaying an exact value of a probability measure in response to a user input.